LETTERS TO THE EDITOR

Regarding "Stent fractures in the Hemobahn/Viabahn stent graft after endovascular popliteal aneurysm repair"

It was with great interest we read the article by Tielliu et al, from Groningen, pioneers in the development of endovascular treatment.[1] They reported their experience of using stent grafts to treat patients with popliteal artery aneurysms (PAAs). Sixty-four patients with 78 PAAs were treated and monitored for a median of 50 months. The authors are to be congratulated that their follow-up was so meticulous, including yearly examinations with duplex imaging and radiographs. Stent fractures were reported in 17% of the treated PAAs. The only significant risk factor for stent fracture development was younger age, most likely a proxy for a high activity level. Occlusion of the reconstruction occurred in 39% when a stent fracture was identified, compared with 25% among those without a stent fracture; this difference was not significant.

We also had an interest in the treatment of PAAs and performed a nationwide study on 517 patients operated on for 717 PAAs.[2] The main findings were that preoperative thrombolytic therapy was associated with better runoff and a lower amputation rate when the patients presented with acute ischemia,[3] that lifelong surveillance was warranted due to the high risk of developing new aneurysms,[4] and that the surgical technique used was important for the long-term outcome.[5]

When we re-examined 190 patients with 239 operated-on PAAs after a median of 7 years, we identified a clinical problem that has been underestimated previously: late expansion due to a phenomenon similar to that of type II endoleak after endovascular aneurysm repair. Among the patients operated on with a medial bypass and ligation of the popliteal artery above and below the aneurysm, this problem occurred in 33% and was symptomatic in 88% of those affected.[5] Many of these patients need a reoperation, illustrated by the patient in the Fig, in whom a large PAA developed 8 years after ligation and bypass. This problem was virtually nonexistent after an operation with a posterior approach,[5] when the branches are ligated, and this is presently our preferred technique for open surgery, whenever feasible.

Late expansion is also a potential problem after endovascular repair. Unfortunately, only 26 of the patients in our cohort were operated on with an endovascular technique, most of them with short follow-up.[5] Thus, we are curious if Tielliu et al have encountered this problem after endovascular repair of PAAs. They write: "In one case where a single stent-graft had been used, an endoleak was found due to disruption of the graft material." However, no data are presented on the possible expansion of the PAA. Did they measure the diameter of the PAA on duplex examination? How often did the diameter increase, and how often was that associated with symptoms? If they did identify patients with late expansion after endovascular repair, was that more common after those with longer follow-up, as was the case after open repair with a medial approach?

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doi:10.1016/j.jvs.2010.07.073

Reply

We thank Björck and colleagues for their interest in our study[1] and their thoughtful comments and relevant questions. Their nationwide study on 717 popliteal artery aneurysms (PAAs) confirms the known problem of aneurysm expansion after open PAA repair. In total, 33% (57 of 174) of PAAs that were operated by the medial approach and monitored for a median of 7 years showed late expansion as a result of a type II-like endoleak. This was symptomatic in 88% (50 of 57) and resulted in reoperation in 14% of those affected.[2]

The authors acknowledge that in 42% of the cases with a long bypass (originating from the common femoral artery or the prox-

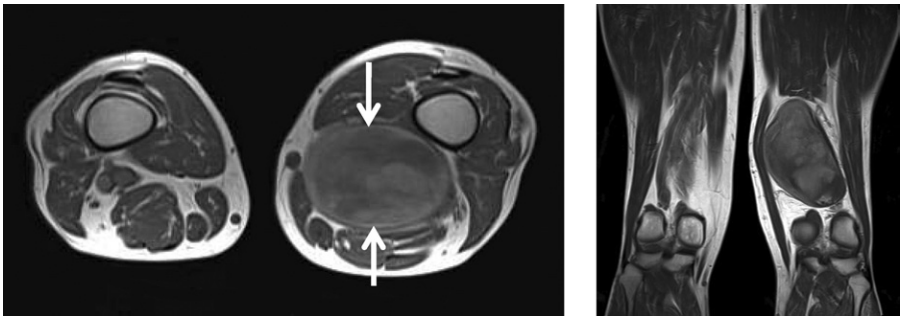

Fig. Magnetic resonance images show an expanding 8- × 12-cm popliteal artery aneurysm (*arrows*), 8 years after double ligation and medial bypass.